

Bootstat 2021: Conformal bootstrap and statistical models



lundi 3 mai 2021 - vendredi 28 mai 2021

Institut Pascal, Orsay, France & online

Programme Scientifique

Asterisks* mark talks for which slides or other materials are available. (Click on the talk title.)
Recordings of all the talks are available at that page.

Multi-week activities

Tutorial: Numerical bootcamp*, supervised by Marten Reehorst (4 sessions in Weeks 1, 2)

1. Status of the conformal bootstrap

Introduction to the numerical conformal bootstrap*, by Alessandro Vichi (4 lectures)
Applications of the numerical conformal bootstrap*, by David Poland
The navigator function : sailing through the infeasible sea in the conformal bootstrap*, by Ning Su
Critical Ising Model in Varying Dimension by Conformal Bootstrap*, by Andrea Cappelli
Critical geometry approach to three-dimensional percolation*, by Alessandro Galvani
Discussion on Non-relativistic conformal symmetries*, with Malte Henkel

2. Statistical physics targets

Random critical points: Anderson transitions, multifractality, and conformal symmetry*, by Ilya Gruzberg (4 lectures)
Upper critical dimension of the 3-state Potts model*, by Shai Chester
Geometrical correlators in 2d CFTs: an introduction with some open problems*, by Jacopo Viti
Four-point cluster connectivities in the 2d critical Q-state Potts model*, by Yifei He
Conformal field theory of the integer quantum Hall transition: a status report*, by Martin Zirnbauer
Discussion on Analytically solving the Ising model in $2 + \epsilon$ dimensions*, with Wenliang Li
Discussion on The 3d Ising CFT spectrum*, with Slava Rychkov

3. Structural phase transitions and other unitary problems

Basics of symmetry in condensed matter physics*, by Sylvain Ravy
Introduction to structural phase transitions*, by Pierre Toledano (3 lectures)
Critical behavior near structural phase transitions*, by Amnon Aharony (2 lectures)
Conformal bootstrap studies of puzzles in critical phenomena*, by Andreas Stergiou
RG Flows in Coupled Replica CFTs*, by Hirohiko Shimada
Discussion on Interchiral algebra from the affine Temperley-Lieb algebra*, with Azat Gainutdinov
Discussion on Four-point functions for non-unitary geometrical problems in two dimensions, with Hubert Saleur
The random field Ising model*, by Silvio Franz, Marco Picco and Emilio Trevisani (2 lectures)

4. Non-unitary bootstrap methods

The crossing equations without positivity: tools and challenges*, by Marco Meineri (2 lectures)
Critical exponents from the Lorentzian inversion formula*, by Johan Henriksson
Operator expansions, layer susceptibility and two-point functions in BCFT*, by Mykola Shpot
How can the perturbative renormalization group help the bootstrap?*, by Kay Wiese

Discussion on Unitarity versus positivity*, with Connor Behan
Discussion on Conformal Field Theories near an Edge*, with António Antunes
Extremal flows for the non-positive bootstrap?*, by Miguel Paulos